

AMENDMENTS TO THE CLAIMS

*Please amend claims 3 and 9, and add new claims 22 and 23, as shown below.
All pending claims are shown below, including those that remain unchanged.*

1. (Previously Presented) A system comprising:
 - a plurality of digital pulse width modulation (PWM) controller chips; and
 - a synchronization line connected to each of the plurality of chips;
 - wherein one of the plurality of chips is a master, and the remainder of the plurality of chips are slaves;
 - wherein the master is configured to generate a synchronization signal on the synchronization line; and
 - wherein each of the slaves is configured to detect the synchronization signal and, in response to detecting the synchronization signal, to begin generating a corresponding PWM audio output signal which has a known phase relationship to PWM audio output signals generated by the other PWM controller chips.
2. (Previously Presented) The system of claim 1, wherein the plurality of digital PWM controller chips comprise separate chips in a multi-chip audio amplification system.
3. (Currently Amended) ~~The system of claim 1, A system comprising:~~
a plurality of digital pulse width modulation (PWM) controller chips; and
a synchronization line connected to each of the plurality of chips;
wherein one of the plurality of chips is a master, and the remainder of the plurality of chips are slaves;
wherein the master is configured to generate a synchronization signal on the synchronization line; and
wherein each slave is configured to detect the synchronization signal and, in response to detecting the synchronization signal, to begin generating a corresponding PWM audio output signal which has a known phase

relationship to PWM audio output signals generated by the other PWM controller chips; and

wherein the master is configured to detect the synchronization signal and, in response to detecting the synchronization signal, to begin generating the corresponding PWM audio output signal which has a known phase relationship to PWM audio output signals generated by the slave PWM controller chips.

4. (Original) The system of claim 1, wherein the master is designated during an initialization process.

5. (Original) The system of claim 1, wherein the master and the slaves have identical circuitry.

6. (Original) The system of claim 1, wherein the synchronization signal comprises a transition from a passive state to an active state.

7. (Original) The system of claim 6, wherein the master is configured to repeat the transition at a fixed intervals.

8. (Original) The system of claim 7, wherein the master is configured to maintain the active state for a fixed period after each transition.

9. (Currently Amended) The system of claim 8, A system comprising:
a plurality of digital pulse width modulation (PWM) controller chips; and
a synchronization line connected to each of the plurality of chips;
wherein one of the plurality of chips is a master, and the remainder of the plurality
of chips are slaves;
wherein the master is configured to generate a synchronization signal on the
synchronization line; and

wherein each of the slaves is configured to detect the synchronization signal and, in response to detecting the synchronization signal, to begin generating a corresponding PWM audio output signal which has a known phase relationship to PWM audio output signals generated by the other PWM controller chips;

wherein the synchronization signal comprises a transition from a passive state to an active state;

wherein the master is configured to repeat the transition at a fixed intervals;

wherein the master is configured to maintain the active state for a fixed period after each transition; and

wherein each slave is configured to sample the synchronization line during the fixed period to determine whether the synchronization line is in an active state.

10. (Original) The system of claim 9, wherein each slave is configured to take multiple samples during the fixed period and to determine whether the synchronization line is in an active state based upon a majority of the multiple samples.

11. (Previously Presented) A system comprising:

a plurality of digital audio controller chips; and

a synchronization line connected to each of the plurality of chips;

wherein one of the plurality of chips is a master, and the remainder of the plurality of chips are slaves;

wherein the master is configured to generate a synchronization signal on the synchronization line, wherein the synchronization signal is a transition from a passive state to an active state which is repeated at fixed intervals and wherein the active state is maintained for a fixed period after each transition;

wherein each slave is configured to detect the synchronization signal by sampling the synchronization line during the fixed period to determine whether the

synchronization line is in an active state, and to begin synchronized operation in response to detecting the synchronization signal;

wherein each slave is configured to detect the transition from the passive state to the active state by sampling the synchronization line at a first rate and, after detecting the transition from the passive state to the active state, to sample the synchronization line during the fixed period at a second rate which is less than the first rate.

12. (Original) The system of claim 9, wherein each slave is configured to filter samples of the synchronization line.

13. (Withdrawn) The system of claim 1, wherein the master is configured to enable transmission of non-synchronization data to the slaves via the synchronization line when the synchronization signal is not being transmitted via the synchronization line.

14. (Withdrawn) The system of claim 13, wherein the synchronization signal comprises a transition from a passive state to an active state, wherein the master is configured to maintain the active state for a fixed period, then transition from the active state to the passive state, then maintain the passive state for a fixed period, then transmit data.

15. (Withdrawn) The system of claim 1, wherein each of the slaves is configured to determine whether an error has occurred and, in response to detecting an error, to cause the master to re-synchronize the slaves.

16. (Withdrawn) The system of claim 15, wherein causing the master to re-synchronize comprises driving the synchronization line to the active state.

17. (Canceled).

18. (Withdrawn) The system of claim 1, wherein the master is configured to determine whether all of the slaves are ready to begin synchronized operation before generating the synchronization signal.

19. (Withdrawn) The system of claim 18, wherein each of the slaves is configured to drive the synchronization line to an active state until the slave is ready to begin synchronized operation, and wherein the master is configured to determine that all of the slaves are ready to begin synchronized operation if the synchronization line is in a passive state.

20. (Previously Presented) The system of claim 1, wherein the output signal of each PWM controller chip has a corresponding PWM switching phase, and wherein the system is configured to stagger the PWM switching phases of the output signals of the PWM controller chips.

21. (Previously Presented) The system of claim 1, wherein the output signal of each PWM controller chip has a corresponding audio signal phase, and wherein the system is configured to align the audio signal phases of the output signals of the PWM controller chips.

22. (New) A system comprising:

a plurality of digital audio controller chips; and

a synchronization line connected to each of the plurality of chips;

wherein one of the plurality of chips is a master, and the remainder of the plurality of chips are slaves;

wherein the master is configured to generate a synchronization signal on the synchronization line; and

wherein each of the slaves is configured to detect the synchronization signal and, in response to detecting the synchronization signal, to begin generating a corresponding audio output signal which has a known phase relationship to audio output signals generated by the other controller chips; and

wherein the master is configured to detect the synchronization signal and, in response to detecting the synchronization signal, to begin generating the corresponding audio output signal which has a known phase relationship to audio output signals generated by the slave controller chips.

23. (New) A method for use with a plurality of digital audio controller chips, the method comprising:

designating one of the plurality of digital audio controller chips as a master, and the remainder of the plurality of digital audio controller chips as slaves;

at the master, generating a synchronization signal on a synchronization line that is connected to all of the plurality of digital audio controller chips; and

at each of the slaves, detecting the synchronization signal and, in response to detecting the synchronization signal, beginning to generate a corresponding audio output signal which has a known phase relationship to audio output signals generated by the other controller chips; and

at the master, detecting the synchronization signal and, in response to detecting the synchronization signal, beginning to generate the corresponding audio output signal which has a known phase relationship to audio output signals generated by the slave controller chips.